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## New Inventions.

## Heteroscopy. Microscopes.

At a recent meeting of the Lincolnton Photographic Society, Mr. Farport introduced to the society a very novel and simple idea which had been brought under his notice the previous day by a Liverpool gentleman, Mr. Gill, by which a stereoscopic photograph can be taken with a single lens, and with an ordinary camera. By Mr. Gill's process the object looks like two pictures joined in the center, joined at each side to so reflect the figures, and there being opposite the lens, two pictures are taken with one lens. But not only are the two pictures taken at one sitting, but they are non-inverted, which is a great advantage obtained by the heteroscopy.

## Heteroscopy. Camera.

The invention of G. W. Bishop, of Brooklyn, N. Y., (which was described on page 123, Vol. 17, of the *Scientific American*), has been lately patented in England and France through the Scientific American Agency. The application of expanded segments as facets to the lens of the camera, is a new and novel way of rendering it from a lens and the inventor believed that he had met a half way to the solution of the problem. The government of this country and Great Britain will, we believe, shortly give it a trial, and we have no doubt that it will fulfill the expectations of the inventor.

## Improved Pump.

Herman A. Mackin, of Mackinac, Va., has invented a new pump which is especially applicable to the raising of viscous liquids, such as oil and the like. It is a vacuum pump of the usual form, but is used in this way of the fluid, they are raised the barrel and valve of the pump, and in a short time raise the fluid to the top. The inventor adds a supplementary chamber into which the liquid is raised and ejected from it without touching the valves or barrel of the pump. It may also be applied to pumping liquids containing sand and gritty materials, as they form no connection with the working parts of the pump.

## Dimple Hammers.

This invention consists in constructing the driver in a novel manner, whereby the strength of the blow may be regulated as desired, so that a full and strong one may be obtained when driving the rivets by withdrawing the hammer, and when a small blow is required, the hammer can be regulated so as to allow only the gas to escape, striking the head in the work. This invention meets an objection that is often made to open hammers, namely, that they carry a great quantity of heat up the chimney and consequently consume a great quantity of fuel. These defects are obviated by having the hammer made of two frames joined the one to the other. It is the invention of David Collins and John Dewey, of New York, who have assigned it to John Collins, of the same place. It was patented this week.

## Hollow Cotton Press.

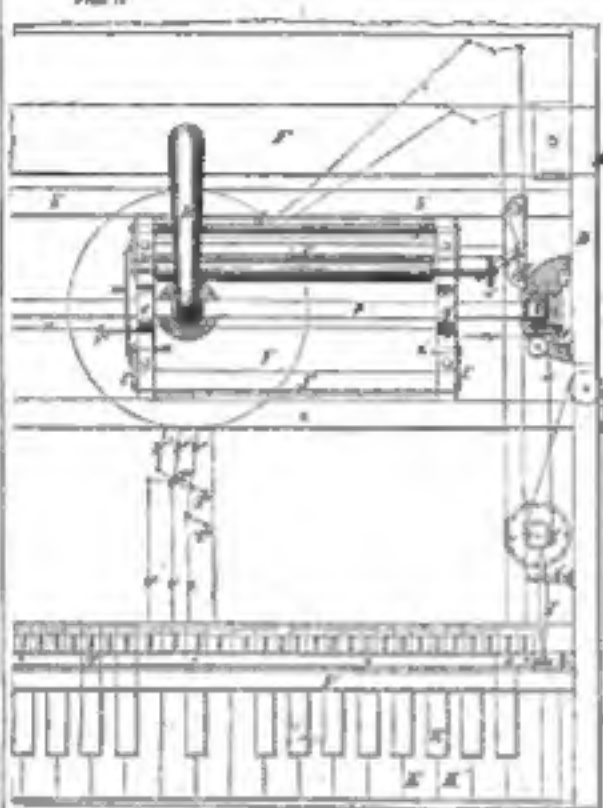
Cotton is a heavy fibrous material occupying a great amount of space, and it would seem to require it to be in the form of a ball, because the weight of the freight would then be of more consideration than the value of the cotton itself, as the method of packing it by means of presses has always been employed in cotton exporting countries. The idea of these presses is to make the fibers lie quite close together with an air between, and so to be in the condition of a ball, then driven in the ball is often only one-third of its original bulk. These presses have been, first, the old screw press, which was replaced by the hydraulic press, and now the steam press is gradually gaining ground and it is no improvement on this last kind that has been invented and patented by John Ray, of New Orleans. This invention consists in constructing the press so that all the power is exerted before being blown away. This is done by the use of three steam cylinders, one being much larger than the other two, and having them arranged so

that a progressive power is obtained. By this means the greatest amount of power is used at first which gradually decreases as the size of the balls increases. In other words, the power supplied the power in the ratio in which it is required.

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## FRANCIS PRINTING MACHINE.

Fig. 1.



This printing machine is intended to be used by each person as they want to produce legible copies of their writings or ideas, and is especially adapted for the use of druggists, editors, authors, and literary men. It is operated by hand, each of which moves a letter, and by pressing on the key, the impression of that letter is made in the paper. The impression of the letter is made in the paper, and the impression of the letter is made in the paper.

Fig. 1 is a top view of the machine, showing the arrangement of the rollers and the printing bed. The rollers are arranged in a row, and the printing bed is located below them.

Fig. 2.

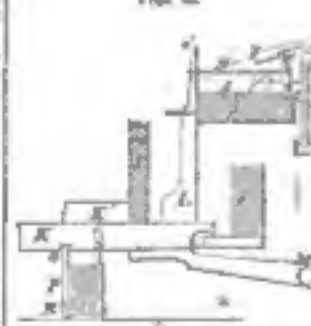


Fig. 2 is a side view of the machine, showing the arrangement of the rollers and the printing bed. The rollers are arranged in a row, and the printing bed is located below them. The machine is designed to be operated by hand, and the impression of the letter is made in the paper.

(and Fig. 3) are cross-sections showing the rollers and the printing bed. The rollers are arranged in a row, and the printing bed is located below them. The machine is designed to be operated by hand, and the impression of the letter is made in the paper.

Fig. 3 is a cross-section of the machine, showing the arrangement of the rollers and the printing bed. The rollers are arranged in a row, and the printing bed is located below them.

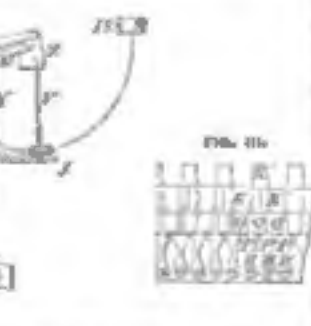


Fig. 4 is a side view of the machine, showing the arrangement of the rollers and the printing bed. The rollers are arranged in a row, and the printing bed is located below them. The machine is designed to be operated by hand, and the impression of the letter is made in the paper.

Fig. 5 is a side view of the machine, showing the arrangement of the rollers and the printing bed. The rollers are arranged in a row, and the printing bed is located below them. The machine is designed to be operated by hand, and the impression of the letter is made in the paper.

Fig. 6 is a side view of the machine, showing the arrangement of the rollers and the printing bed. The rollers are arranged in a row, and the printing bed is located below them. The machine is designed to be operated by hand, and the impression of the letter is made in the paper.

Any modifications suitable to a person, such as changing the type, or adapting the machine to the use of blind persons, etc., may be made, by applying to Mr. V. Bonavent, 12 Franklin street, who has contracted to build the machine. It was patented Oct. 27, 1867. Patent office and machine for sale at E. W. Francis office, 445 Broadway, New York.

## Heteroscopy. Gas Burners.

Gas burners, usually made of iron or brass, are subjected to some difficulties. The heat of the flame expands the metal and enlarges the opening, causing some waste of gas; and besides, the metal is liable to corrode, by the action of the gas upon it. To obviate these evils, H. Schenck, of Stenning, Germany, has lately manufactured gas burners from magnesia (magnesite), which is prepared for this purpose in a peculiar manner. This stone is broken up into small flat-shaped chips, put into a specially heated room, and exposed to a slow fire until it becomes red-hot. When it is cooled it is then ground to a fine powder, and if quickly heated, it will explode by the sudden expansion of small particles of moisture in it. The stone chips are exposed to the heat for about two hours, slowly cooled, and are then slowly heated to the proper shape in a lathe. After this they are heated in oil until they acquire a deep brown color, when they are taken out, dried, and made to assume a beautiful yellow by simply rubbing them with a wooden peg. The burning of gas burners is an art requiring great care and skill, as the opening of each burner is formed to contain a certain quantity of gas.

Gas burners made as described from soap stones are found to be perfectly fireproof, and are liable to any change in structure in the use of the burner or nature of the material by the strongest heat produced by the combustion of the gas. Liddell, in his "Annals of Chemistry and Pharmacy," gives descriptions of a very high character, and advises all chemists to employ them in their laboratories, as they are not affected by the largest flames, in which they may be exposed to applying them to distillation or other methods of analysis. This is a great advantage which they possess over common metal burners. As magnesia is abundant in our side of the Atlantic, some of our practitioners may be induced to try their hand in making them. They soon obtain for this purpose the best specimens, which are being sent to us, and we are sure to supply every particle of material from them in working. Some have also been used with great success for the manufacture of these useful articles; it is taken from the fields of Mount Atlas and Tiverton, and burned in to ordinary lime.

## Heteroscopy. Heteroscopy. Heteroscopy.

We are daily receiving recommendations to the subjects above named; but having published so much already pertaining to them, we are bound to decline, for the present, publishing more upon these subjects, unless some new ideas are set forth. We would advise those who would like to contribute their plans to the best mode of paying out the capital, to address Cyrus W. Field, President of the Atlantic Telegraph Co., No. 40 Wall-st., New York.

## Scientific American.

NEW YORK, DECEMBER 26, 1887.

## State of Affairs at the Patent Office.

The decision of all applications for patents is determined, in the first instance, by a corps of officers, seated in the patent law, "Examiners." It is their duty to make the necessary inquiries to ascertain whether the invention before them possesses novelty and utility; if so, to certify the fact to the Commissioner, who thereupon issues a patent. If novelty and utility are not found to exist, then the Examiner reports accordingly, and the application is rejected.

The Commissioner is the chief of the Patent Office, and all its actions are regulated by him. He cannot, of course, make a personal examination of every invention, and incidentally its patentability. But he can, and does, lay down the general rules and principles that are to govern the Examiners in their official actions.

Commissioner Bliss, after assuming the duties of office, expressed his determination to administer the patent law in that liberal spirit in which it is so evident that they were designed to be applied; and he has thus far carried out his intention with much success.

In a notice of decisions, which, as a whole, are everywhere admired for their beautiful clarity and sound reasoning, he has given expression to rules and principles for the government of the examining corps, in clear and unambiguous terms. "He who can say so,"

The younger members of the corps have entered a ready and willing and a prompt compliance with those expectations; and they subscribe, in all cases, to govern their official action by them.

But we are sorry to observe that some of the older Examiners, while they do not openly rebel against Commissioner Bliss, are, to say the least, very backward, we think, in adopting his rules of action. They profess a willingness to follow his instructions; but, unknown, or unperceived by the younger members, they are carefully kept in the practical application of those instructions.

To reach a point where they might be, they occasionally feel themselves unable to agree with their younger brethren, when special cases are fairly referred to them. And it is common for inventors who have applied to proceed, in return the Commissioner will allow them to be referred to certain of the older members; for experience has taught them that they cannot depend upon receiving justice from those common. Now, we submit that such Examiners are improper persons for appeal cases.

It would, probably, be difficult to find a more able, experienced and industrious corps of scientific men than some of the older Examiners of the Patent Office. But while we value their abilities, we must too strongly condemn their inflexibility. As a class they seem to have inherited an obstinate prejudice against inventors, and all who entertain views favorable to a liberal management of the Office. They are filled with the gloomy forebodings, but very many patents shall be granted, and not enough rejected. Like the bear with her cubs, they make a great cry against the younger members, because the latter search not so boldly in the path of duty and liberality.

The younger members have been tried, and are not found wanting. They are men of talent, producers, and reliability. Their ideas are in keeping with the times. Their official conduct, thus far, is commendable and sustained in the most sympathetic manner, not only by the Commissioner of Patents and the Secretary of the Interior, but by inventors and all who have business relations with the Office.

Unless we greatly misapprehend his views, President Freeman is also in favor of the most liberal administration of the office of

the Patent Office consistent with goodness, and hearty approval of every economical which tends in that direction.

It is fully to be expected that no many patents can be granted. Constant experience grows the economy. Patent property grows immensely high prices and was never so great as it was just previous to the late commercial crisis; yet the number of patents issued has increased fifty per cent. within four years. So long as the Patent Office continues the law liberally, but not needlessly; avoiding the granting of two patents for the same thing, but awarding grants for just what the applicant has invented—nothing more, nothing less—under such circumstances the more patents granted the better. It should be the duty of the examining officers to not have many patents they can, with any show of propriety, grant—not how many they can reject.

The liberal system is demanded by a few reasons, though four that, until the multiplicity of patents, invention will begin upon the public. For here, again, facts prove the contrary. Some view the public in freedom of invention in this respect as at the present time. The greater the number of patents the more careful do gentlemen become to avoid being deceived. The man who assumes ordinary business will be guided by the purchase of a patent right. Besides, an equal, with intelligence, the idea that inventors are given to such practices. It is notorious that they are generally the victims and sufferers by necessity, but within the perpetration of wrong. Most of thought and genius, engaged in building the world, are rarely rewarded for original inventions.

Under the above new system, we learn that Commissioner Bliss has appointed a Board of Appeals, to assist him in hearing and reviewing rejected applications. The board is composed of three Chief Examiners, the Honorable H. Briggs, Dr. Wm. C. Lawrence, and A. R. Latham—all men of ability and experience. The establishment of this board is a monument of great importance, and will show the subject of special interest to one and another.

## Philosophical Investigation.

We find that we can never sufficiently express the public mind with the fact that each and every one of us has some great work—some special mission—to perform towards accomplishing the mighty mission of nature. We stand as it were with objects for our investigation, objects full of beauty, harmony, and interest, lying at our feet and throwing themselves on our notice as they may see us in life, each morning as we rise to meet with powerful though silent appeal. "Examine me, unfold my beauties, demonstrate my harmonious relations in the great scheme of creation, and let the world know all the wisdom that I possess!" To do this is the aim of all philosophy, and to do it is the pure spirit of an honest searcher after truth, in carrying out the real meaning of the word "philosophy," a love of wisdom.

To be a true philosopher does not, as some suppose, require a vast amount of costly apparatus. The celebrated Dr. Black presented his chemical researches with a few flasks and retort-standards, and Dr. Dubois, the discoverer of the germ theory, was almost equally devoid of mechanical aids; a balance, a magnet, and a few sheets are sufficient for a geologist or mineralogist, with sometimes the addition of a lens and a chisel; and a pair of scales and a sharp knife will serve the anatomist and biologist. Progress, the Scottish philosopher remarked, measured the distances of the stars through the distance of a piece of paper, and landmarks of science—examples might be cited where genius has triumphed over every difficulty in the pursuit of its favorite study. If these great men have done so much with so little aid, how much might humble philosophers do to achieve the same work as simply at their command! Each person knows what object of nature pleases the most. Some the bird, others flowers, some plants, and others stones, and were every one to give down what struck him as being the difference between various natural or man-made objects of nearly the same kind, he would be surprised at the amount of information he had given to the world. To demonstrate the results of any scientific investigation, whether from small or great, the substance of the Science of Invention are always upon.

Could the great living philosopher, whose life is a monument, have studied birds while a working gentleman on the banks of the river Thames, and was disturbed from his situation by shouting magistrates instead of standing his work; and George Stephenson, the engineer, was not a collier's boy. These examples prove what great things may be done by humble men who enter on the study of nature in a true spirit, for a book full of facts discovered by the student, or a bridge built by a self-taught engineer is a more noble monument than a public funeral or a pyramid. When, may be said, is the end and aim of this method of metaphysical study? It is to stir up the latent genius of our country, that she may produce men as great, and nearly as glorious, as the nations that have gone before her. We say, it is true, a business people, and a trading community, but neither of these are incompatible with philosophical investigation. A man can be a merchant one hour a day, and a philosopher the rest. Let us then begin and be something to all the advancement of the knowledge of the truths of nature, so we endeavor to advance those of our higher studies of moral life—let us begin to think that there are other things worth living for than the possession of wealth—and more glorious legacies to bequeath than when we have labored on, when we go to.

"That some men who are more or less of these things and more, and let us collectively begin to believe that knowledge is a more valuable acquisition than money. When we all do this, we shall be the country of the world, and our progress as a nation will be the most glorious in the history of man."

## Improvements in Naval Gunboats.

A very interesting report on this subject has just been presented to the Secretary of the Navy by Captain Dahlgren, inventor of the heavy armor-plated gunboats. A number of gunboats, he was led to investigate the subject of naval batteries, and the results indicated that, in 1850, to prepare a small change in those belonging to our navy. For this purpose he suggested the idea of gunboats with armor-plated hulls, and some plans were put forward in his mind in that year, and experimentally with all 1855. As these gunboats were very costly, however, they were not placed in any of the old ships of war, but were kept for the present our main fleet.

On the 22d of June last, the steam frigate *Albatross*, with Captain Dahlgren on board, left Washington for a cruise at sea, one object of which was to test these gunboats when they could be maneuvered, their efficiency over the old ones of iron-clad, etc. The cruise lasted 151 days, but only 116 days were spent at sea. On this vessel there was one 11-inch gun, and a battery of 10-inch guns. The report states, that when the ship was in action, the 11-inch gun was the first to fire at 100-pieces, but when the deck is laid out, the working of the guns is much retarded; still, even at the inclination of 15° a well-directed shot was able to destroy shells at distances of 1000 yards, and at an angle of 25° in 22 seconds. This is certainly pretty rapid position with such large cannon. When the frigate was in an evasive position, the 11-inch gun could not be fired so rapidly as the 10-inch cannon; but it was worked more rapidly when the deck of the vessel was laid out, even at right angles. At this angle, 17 shells were discharged in the same time as 22 from the 10-inch gun. As a great gun, it was found to be manageable as a common 60-pounder, and so difficult was expect-

ed in making such heavy charges move in the most easy manner.

It is not stated how far these guns carry. The target was placed only at 1,000 yards distance, but they ran, unobstructed, and shells ran close by. The large 11-inch gun is a monster, weighing, with its carriage, no less than 125 tons.

This is the substance of the report on the Dahlgren gun; let us the frigate, in her cruise, visited several European ports, Captain Dahlgren took the opportunity of examining some of the British naval dockyards, and witnessing the operations conducted in them. In the British navy, sailing vessels have become obsolete, no ship-of-war being now constructed without the use of steam power for propulsion. It would appear, however, that as British heavy cruisers come up, in weight of metal, to the large 11-inch Dahlgren gun. England has 125 steamships-of-war in commission, and 145 steam gunboats—an immense steam navy. We also learn from the report that a number of large steam frigates are now building in England, to stand in range with our new and largest steam vessels; one of these, named the *Albatross*, approaches in its dimensions the *Albatross*, which is the largest in our navy, and she is to be armed with cannon of such caliber (viz., fifty 60-pounders) as will make her, we understand, the most formidable ship-of-war in the world.

In modern naval gunnery, great improvements have been made over the old methods, by the employment of steamships and large cannon. We believe that 10-pieces were the largest class of guns employed in the days of Nelson. Calibers of such caliber are now obsolete, and obsolete.

The Steamship *Albatross*.

The *Albatross*, which left Liverpool on the morning of the 22d inst., brings intelligence of the *Albatross*'s arrival. She arrived at Port Lyons at nine o'clock on the morning of the 24th inst., sailing 10 days and 4 hours from New York, but owing to the brevity of the trip, did not go up to the Murray until the 26th, so that we may say her run to Liverpool was ten days and a half.

We read not, however, of her sailing qualities by the first reports, as it is stated that a month's time was required for her to make her trip. Her rate also has been ascertained but whether, at any time, we read and judge of her speed until she has made two or three trips, when she will be in perfect form and likely to do her best.

## The "Leviathan."

By the latest news from Europe, we learn that the launching of this huge vessel was gradually proceeding, and that since the second launching failure, it already noticed by us, she had been moved from the former place. At the time when she struck her in her ways, suffering every attempt to move her. It is related, that a London war came up to St. Ives, and such was all check, by steering in a direction that part of the ship which says, "Can't you pull over the Leviathan with a hook?"

The progress of this vessel is very tedious; she has still 100 tons to move, but the engineers, it is stated, have perfect control over her, and hope are determined that the launch will after all be perfectly successful, and that, too, at an early date.

## About the Lane Club.

To those of our friends who are sympathetic for the Fifth Avenue Club offered in prize, which are to be awarded on the 1st of January, we would remind them that the time for their action is short. Only ten days more and the "pull" will be stated. Some will wish they had suggested their members only by a few names, so close with they come to the award of a larger prize than they will get, unless they send a few more names. Who these are, we cannot tell, but a word in the wise is sufficient for all.







